

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

**General Permit – Antifouling Paint Contaminated
Vessel Wash Water**

**Maine Pollutant Discharge Elimination System
Maine Waste Discharge Program**



Bureau of Land and Water Quality
Waste Discharge License #W009046-5Y-A-N
MEPDES Permit #MEG170000

June 26, 2009

GENERAL PERMIT – Antifouling Paint Contaminated Vessel Wash Water

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IN THE MATTER OF

ANTIFOULING PAINT CONTAMINATED)	MAINE POLLUTANT DISCHARGE
VESSEL WASH WATER)	ELIMINATION SYSTEM PERMIT
GENERAL PERMIT)	
STATE OF MAINE)	AND
#W009046-5Y-A-N)	WASTE DISCHARGE LICENSE
#MEG170000)	NEW

APPROVAL

Pursuant to the provisions of the *Federal Water Pollution Control Act*, Title 33 USC, § 1251, et seq. and Conditions of Licenses, 38 M.R.S.A. Section 414-A et seq., and applicable regulations, the Department of Environmental Protection (Department) is hereby issuing a new combination Maine Pollutant Discharge Elimination System(MEPDES) Permit #MEG170000 / Waste Discharge License (WDL) #W009046-5Y-A-N, *Antifouling Paint Contaminated Vessel Wash Water* (General Permit),with its supportive data, agency review comments, and other related materials on file, the Department FINDS THE FOLLOWING FACTS:

REGULATORY SUMMARY

On January 12, 2001, the Department received authorization from the U.S. Environmental Protection Agency (USEPA) to administer the National Pollutant Discharge Elimination System (NPDES) permit program in Maine. From that point forward, the program has been referenced as the MEPDES permit program.

On DATE, the Department published a public notice of its intent to issue a new general permit for Antifouling Paint Contaminated Vessel Wash Water in # newspapers with daily distribution pursuant to *Rules Concerning the Processing of Applications and Other Administrative Matters*, 06-096 CMR 2 (effective August 1, 1994).

PERMIT SUMMARY

WDL #W009046-5Y-A-N authorizes the discharge of up to 1,000 gallons per day of treated antifouling paint (AFP) contaminated vessel wash water to Class SB and SC waters of the State.

The discharge of AFP contaminated vessel wash water has not been licensed or permitted prior to this general permit except through one experimental permit. AFP contaminated vessel wash water contains pollutants at levels that require collection and treatment prior to discharge. This general permit:

1. Requires the collection of all vessel wash water contaminated with AFP residues (AFP contaminated vessel wash water).
2. Requires the treatment of all AFP contaminated vessel wash water to defined effluent limits.
3. Establishes effluent limits for biochemical oxygen demand (BOD), total suspended solids (TSS) and total copper (Cu), total lead (Pb), and total zinc (Zn).
4. Requires an effluent monitoring schedule to ensure that the treated effluent meets the effluent limits using prescribed test methods and detection limits.
5. Establishes a discharge volume limit and outfall pipe configuration to maintain existing receiving water quality, and ensure that the ambient water quality criteria for each pollutant is met.

CONCLUSIONS

Based on the findings in the attached PRELIMINARY/PROPOSED DRAFT Fact Sheet, dated June 26, 2009, and subject to the conditions listed in Parts I and II of this general permit, the Department makes the following **CONCLUSIONS**:

1. The discharge, either by itself or in combination with other discharges, will not lower the quality of any classified body of water below its classification.
2. The discharge, either by itself or in combination with other discharges, will not lower the quality of any unclassified body of water below the classification that the Department expects to adopt in accordance with state law.
3. The provisions of the State's antidegradation policy, *Classification of Maine Waters*, 38 M.R.S.A. § 464(4)(F), will be met, in that:
 - (a) Existing in-stream water uses and the level of water quality necessary to protect and maintain those existing uses will be maintained and protected;
 - (b) Where high quality waters of the State constitute an outstanding national resource, that water quality will be maintained and protected;
 - (c) The standards of classification of the receiving water body are met or, where the standards of classification of the receiving water body are not met, the discharge will not cause or contribute to the failure of the water body to meet the standards of classification;
 - (d) Where the actual quality of any classified receiving water body exceeds the minimum standards of the next highest classification that higher water quality will be maintained and protected; and
 - (e) Where a discharge will result in lowering the existing water quality of any water body, the Department has made the finding, following opportunity for public participation, that this action is necessary to achieve important economic or social benefits to the State.
4. The discharge will be subject to effluent limitations that require application of best practicable treatment as defined at 38 M.R.S.A. § 414-A(1)(D).

ACTION

Based on the findings and conclusions as stated above, the Department is hereby issuing MEPDES Permit #MEG170000 / WDL #W009046-5Y-A-N, for the discharge ANTIFOULING PAINT CONTAMINATED VESSEL WASH WATER to Class SB and SC waters, SUBJECT TO THE ATTACHED CONDITIONS, including:

1. The attached Special Conditions included as Part I of this general permit.
2. The attached Standard Conditions included as Part II of this general permit.
3. *Maine Pollutant Discharge Elimination System Permit Standard Conditions Applicable To All Permits*, revised July 1, 2002, copy attached.
4. The expiration date of this permit is five (5) years from the date of signature below.

DONE AND DATED AT AUGUSTA, MAINE THIS _____ DAY of _____ 2008.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: _____
DAVID P. LITTELL, Commissioner

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of Public Notice: DATE

Date filed with Board of Environmental Protection: _____.

This Order prepared by Pamela Parker, BUREAU OF LAND & WATER QUALITY
#W009046-5Y-A-N/MEG140000 June 26, 2009

PART I – SPECIAL CONDITIONS

- A. Authority.** A permit is required for the direct or indirect discharge of pollutants to waters of the State pursuant to *Water Pollution Control*, 38 M.R.S.A. § 413. The Department may issue a general permit authorizing the discharge of certain pollutants pursuant to *General Permits for Certain Wastewater Discharges*, 06-096 CMR 529 (last amended June 27, 2007). A violation of a condition or requirement of a general permit constitutes a violation of the State’s water quality laws, and subjects the discharger to penalties under Chapter 2 *Organization and powers*, 38 M.R.S.A. § 349 et seq. Nothing in this general permit is intended to limit the Department’s authority under the waste discharge and water classification statutes or rules. This general permit does not affect requirements under other applicable Maine statutes and Department rules.
- B. Specialized Definitions.** In addition to the definitions found in *Definitions in the Waste Discharge Permitting Program*, 06-096 CMR 520 (effective January 12, 2001) and in the waste discharge and water classification laws, the following terms have the following meanings when used in this general permit.
1. **Antifouling Paint.** “Antifouling Paint” “AFP” is a pesticide, adjuvant, solvent, and pigment compound or coating applied to the submerged portion of a vessel’s hull to prevent growth of marine organisms. Antifouling paint’s active ingredients may include multiple pesticides. AFP residue is the portion of the paint coating left after the vessel has been in the water that may be washed off during pressure washing.
 2. **Bilge Water.** “Bilge water” means water from the bottom of the vessel’s interior spaces.
 3. **Hull.** “Hull” means the exterior body frame of a vessel.
 4. **Notice of Intent (“NOI”).** “Notice of Intent” means a notification of intent to seek coverage under this general permit made by the applicant to the Department on a form provided by the Department.
 5. **Pressure Washing.** “Pressure washing” means the use of a device that increases the pressure of pumped water for the purpose of removing dirt, paint, or biological growth from a vessel’s hull.
 6. **Pressure Wash Water.** “Pressure wash water” means the waste water generated during pressure washing.
 7. **Topside.** “Topside” means the exterior of the vessel above the waterline.
 8. **Vessel.** “Vessel” means a craft designed to navigate the water including but not limited to boats, yachts and ships.
 9. **Vessel Maintenance Facility.** “Vessel Maintenance Facility” or “Facility” means a business, organization, or person engaged in the construction, repair, or maintenance of vessels. A vessel maintenance facility is commonly referred to as a boatyard or marina with repair facilities. Marinas that do not provide hauling, storage, or other facilities where vessel hull washing could occur are not considered vessel maintenance facilities.

10. Hull Washing. “Hull washing” means cleaning the exterior of a vessel using any means, including manual scrubbing, low pressure water washing, and pressure washing.

C. Applicability and Coverage. Coverage under this general permit is limited to those receiving waters that conform with the Area of Coverage described below and that have had a completed NOI accepted by the Department. Applicability of this general permit is limited to activities described in the NOI that are in conformance with the terms and conditions of this general permit.

- 1. Area of Coverage.** The geographic area covered by this general permit includes all Class SB or SC marine or estuarine waters of the State of Maine, except Class SA waters and the Saco River Estuary. This general permit covers discharges to marine and estuarine waters only.
- 2. Sources.** Waste water generated during vessel hull washing activities at a vessel maintenance facility containing AFP residues. All vessel wash water contaminated with AFP must be captured and treated prior to discharge. Waste water that does not include AFP or other paint residues is not subject to this permit.
- 3. Prohibited Sources.** Waste water from other washing activities including engine cleaning, and sewage holding tank flushing are prohibited. Oil and grease contaminated bilge water disposal is prohibited although the incidental inclusion of uncontaminated bilge water is acceptable. The discharge of any other industrial process waste is prohibited.
- 4. Prohibited discharges.** This permit authorizes discharges of treated AFP contaminated wash water to Class SB and Class SC waterbodies of the State. Discharges of AFP contaminated wash water to the ground, groundwater, or surface waters not identified in the area of coverage are prohibited unless otherwise permitted by the Department.
- 5. General Restrictions.** All AFP contaminated wash water generated during vessel hull washing must be captured and treated using a Department-approved system. Discharges may occur only through an outfall placed in such a manner that the discharge is submerged below the surface of the water to a depth of at least 5 feet at mean low water. The wash water collection area must be kept clean and free of paint debris, oils and greases to reduce the potential discharge through storm water. When not in use, the vessel maintenance facility must prevent rainwater and storm water from entering the treatment system.
- 6. Applicability and Requirements of Applicant.** A person seeking coverage under this general permit must demonstrate to the Department that he or she has a method to collect and treat all AFP contaminated vessel wash water from the vessel maintenance facility. In addition, he or she shall control vessel hull washing activities at the facility to ensure that washing takes place in a manner that ensures all AFP contaminated wash water is collected and directed to the treatment system. The person also must implement Best Management Practices to reduce other potential pollutants and storm water from being discharged to the collection and treatment system. Finally, the outfall must be maintained in such a manner to ensure proper mixing of the effluent and in accordance with the specific requirements of the permit.

D. Notification and Acceptance.

- 1. Notice of Intent (NOI) Required.** A person meeting the requirements and seeking coverage under this general permit shall submit a completed NOI with the appropriate initial permit fee to the Department for review and approval. NOI forms may be obtained from, and completed forms must be sent by certified mail (return receipt requested) to:

Department of Environmental Protection
Division of Water Quality Management
Permitting Section
17 State House Station
Augusta, ME 04333-0017

Alternately, a person may hand-deliver a completed NOI form to the Department's Augusta office. The Department reserves the right to request additional information from the applicant. Permitting information, forms, and Augusta office directions may be obtained by contacting the Department's Waste Discharge Licensing Unit at (207) 287-3901 or toll-free at 1-800-452-1942. A person may also access all applicable forms online at <http://www.maine.gov/dep/blwq/docstand/wd/gp.htm>.

- 2. Required NOI Information.** A complete NOI must contain the following information.
 - a. The legal name, mailing address and telephone number (e-mail address preferred) and signature of the owner and lessee, if applicable, of the property on which the vessel hull washing operation is proposed.
 - b. The legal name, mailing address, telephone number, e-mail address if available, and affiliation of any agents assisting, in full or in part, with the completion of the NOI form.
 - c. Adequate documentation of Title, Right or Interest in accordance with 06-096 CMR 2,(11)(D) and a copy of the *Certificate of Good Standing* for a corporation if applicable.
 - d. A topographic or similar type map (or copy thereof) clearly identifying the location of the facility, the collection system, the treatment system, and discharge pipe.
 - e. A site plan including property boundaries, buildings, roads, parking areas, streams and wetlands.
 - f. A NOAA chart (or copy thereof) clearly locating the end of the discharge pipe when in use including the specific latitude and longitude location with an accuracy +/- 100 ft and the depth of the water over the discharge pipe at mean low water and the means of measurement.
 - g. A minimum of 4 different color photographs detailing the location, layout, orientation and size of the collection system and the location, and layout of the wash water treatment system. Pictures shall be of sufficient detail to identify construction materials and location within the facility.
 - h. Detailed description of the treatment method, operational procedure, treatment capacity including maximum flow, and maintenance schedule

- i. A brief description of the number of vessels serviced by the facility and the approximate number of vessels and length to be washed annually.
- j. A list of all other DEP permits held, including license or permit number.

Failure to submit all required NOI information may result in finding the NOI incomplete for processing and may delay processing or result in denial of the NOI.

- 3. Filing of a NOI and Public Notice.** Pursuant to 06-096 CMR 2, within 30 days prior to filing the NOI with the Department, an applicant for coverage under this General Permit shall give public notice of its intent to submit a NOI to the Department. A copy of the NOI must be filed with the civil jurisdiction (for example, municipal office(s) or County Commissioners' office) in which the facility is located at the time it is submitted to the Department. An original or photocopy of the public notice must be submitted to the Department with the NOI.
- 4. Review of NOI and Other Information.** Upon review of a NOI for determination of coverage under this general permit, the Department may, at its discretion, require an applicant to apply for an individual permit for wastewater discharge. In making such a determination, the Department may consider factors including, but not limited to, the location of the waterbody and water quality issues particular to that area, and expressed comments from state or federal agencies or the general public.
- 5. Effective Date of Coverage.** The Department shall notify an applicant of coverage under this general permit as to whether or not coverage for the specific discharge is permitted within 31 calendar days of receipt of each complete NOI or date of public notice publication whichever is later. If the Department does not notify the applicant within 31 calendar days of this time, the NOI is accepted and coverage is granted. In the event coverage is not granted, the Department shall notify the applicant of the reason(s) for not granting coverage. A person may apply for issuance of an individual MEPDES permit if the proposed discharge(s) is not acceptable for coverage under this general permit.
- 6. Transfer of Ownership.** In the event that the ownership of a facility is transferred to a new owner, coverage under this General Permit may be transferred by the new owner notifying the Department in writing, provided the new owner proposes no significant changes in the facility or its operation. The notice must include documentation that the new owner has: 1) a Certificate of Good Standing issued by the Maine Secretary of State; 2) title, right or interest in the facility; and 3) the technical and financial capacity to comply with this General Permit. Such notification must be made within two weeks of the transfer. If increases or significant changes in the discharge are proposed, a new NOI must be filed.
- 7. Changed Conditions.** In the event that a facility proposes to make significant changes in the nature or scope of the vessel hull washing operation described in a NOI previously approved by the Department, the permit holder shall notify the Department before implementing such changes. Based on its evaluation of proposed changes, the Department may require the submission of a new NOI or application for an individual MEPDES permit. Significant changes include, but are not limited to, changes to the collection or treatment systems, changes to the location of the discharge line, and changes to the number or type of vessels to be serviced that would result in the elimination of the discharge or the expansion of the discharge volume beyond the permit limit.

E. Continuing Coverage and Termination

- 1. Notices by Applicant and Payment of Fees.** The term of this General Permit is five years. Coverage under this General Permit will be continued from year to year through payment of an applicable annual fee pursuant to *Maine Environmental Protection Fund*, 38 M.R.S.A. § 353-B, provided there are no changes in the facility or its operation as described in the NOI. Prior to expiration of this General Permit, the Department shall make a determination if it is to be renewed, and, if so, will commence renewal proceedings. If the General Permit is to be renewed, it shall remain in force until the Department takes final action on the renewal. Upon reissuance of a renewal General Permit, persons wishing to continue coverage shall apply for coverage under the renewal General Permit not later than 30 days following the effective date of the new General Permit.
- 2. Individual Permit Coverage.** The Department may require, or an interested person may request for consideration, that a facility covered under this general permit apply for an individual permit to discharge AFP contaminated vessel wash water for any of the reasons specified at 06-096 CMR 529(2)(b)(3)(i)(A-G) or for the following reasons:
 - a. The vessel hull washing operation, collection system, treatment system, sampling locations, or outfall location is not in compliance with the conditions of this general permit;
 - b. The discharge of AFP contaminated vessel wash water causes or contributes to non-attainment of classification standards; or
 - c. Any other factors the Department determines are relevant including non-compliance with the general permit, changes in effluent limit guidelines, or circumstances that make the discharge no longer appropriately controlled.
- 3. Exclusion from Coverage.** A facility may request that it be excluded from coverage under this General Permit and apply for an individual MEPDES permit pursuant to 06-096 CMR 529(3)(iii-v). When an individual MEPDES permit is issued to a facility otherwise subject to this General Permit, the applicability of this General Permit to that facility is automatically terminated on the effective date of the individual MEPDES permit.

SPECIAL CONDITIONS**F. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

1. The permittee is authorized to discharge treated wash waste waters from **OUTFALL # 001A** to the Class SB or SC waters identified in the approved NOI. Such discharges shall be limited and monitored by the permittee as specified below. The italicized numeric values bracketed in the table below are code numbers that Department personnel utilize to code Discharge Monitoring Reports (DMRs). All monitoring results will be reported through the use of electronic DMR (eDMR) system unless the permittee is authorized to submit paper forms by the Department.

August – December of each year

Effluent Characteristic	Discharge Limitations				Minimum Monitoring Requirements	
	Mass		Concentration		Measurement Frequency	Sample Type ⁽¹⁾
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum		
Flow [50050]	600 gpd [07]	1,000 gpd [07]	---	---	1/Discharge Day ⁽¹⁾ [01/DD]	Measure [MS]
Biochemical Oxygen Demand (BOD ₅) [00310]	0.14 lbs/Day [26]	0.40 lbs/Day [26]	30 mg/L [19]	50 mg/L [19]	1/Month ⁽¹⁾ [01/30]	Grab [GR]
Total Suspended Solids (TSS) [00530]	0.14 lbs/Day [26]	0.40 lbs/Day [26]	30 mg/L [19]	50 mg/L [19]	1/Month ⁽¹⁾ [01/30]	Grab [GR]
Copper (Total) [01042]	0.01 lbs/Day [26]	0.02 lbs/Day [26]	781 µg/L [28]	1856 µg/L ⁽²⁾ [28]	1/Month ⁽¹⁾ [01/30]	Grab [GR]
Lead (Total) [01051]	0.01 lbs/Day [26]	0.85 lbs/Day [26]	1.74 mg/L [19]	7.1 mg/L ⁽²⁾ [19]	1/Month ⁽¹⁾ [01/30]	Grab [GR]
Zinc (Total) [01092]	0.13 lbs/Day [26]	0.37 lbs/Day [26]	17.56 mg/L [19]	3.05 mg/L ⁽²⁾ [19]	1/Month ⁽¹⁾ [01/30]	Grab [GR]

SPECIAL CONDITIONS

F. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (cont'd)

Footnotes:

1. **Sampling** – Sampling of the wash water must be conducted at the end of the treatment system from August through December during times of active usage and discharge. Any change in sampling location must be approved by the Department in writing. Sampling and analysis must be conducted in accordance with; a) methods approved by 40 Code of Federal Regulations (CFR) Part 136, (b) alternative methods approved by the Department in accordance with the procedures in 40 CFR Part 136, (c) as otherwise specified by the Department. Samples that are sent out for analysis shall be analyzed by a laboratory certified by the State of Maine's Department of Human Services. Samples that are sent to a publicly owned treatment works licensed pursuant to *Waste discharge licenses*, 38 M.R.S.A. § 413 are subject to the provisions and restrictions of *Maine Comprehensive and Limited Environmental Laboratory Certification Rules*, 10-144 CMR 263 (last amended February 13, 2000).
2. **Reporting limits (RLs)** - All analytical test results must be reported to the Department including results which are detected below the respective RLs specified by the Department or as specified by other approved test methods. If a non-detect analytical test result is below the respective RL, the concentration result must be reported as <Y where Y is the detection limit achieved by the laboratory for each respective parameter. **Reporting a value of <Y that is greater than an established RL is not acceptable and will be rejected by the Department.** For mass, if the analytical result is reported as <Y or if a detectable result is less than a RL, report a <X lbs/day, where X is the parameter specific limitation established in the permit.

PART II – STANDARD CONDITIONS

The discharge of treated AFP contaminated vessel wash water under this general permit must, at all times, comply with the State's water quality laws, including, the following restrictions, limitations and conditions.

A. Narrative Effluent Limitations

1. The discharge shall not contain a visible oil sheen, foam or floating solids at any time which would impair the usages designated by the classification of the receiving waters.
2. The discharge shall not contain materials in concentrations or combinations which are hazardous or toxic to aquatic life, or which would impair the usages designated by the classification of the receiving waters.
3. The discharge shall not impart color, taste, turbidity, radioactivity, settleable materials, floating substances or other properties that cause the receiving water to be unsuitable for the designated uses ascribed to its classification.

4. Notwithstanding specific conditions of this general permit, the discharge shall not lower the quality of any classified body of water below such classification, or lower the existing quality of any body of water if the existing quality is higher than the classification.

- B. Monitoring Requirement.** The Department may require, following approval of a NOI, monitoring of an individual discharge as may be reasonably necessary in order to characterize the nature, volume or other attributes of that discharge or its sources.
- C. Other Information.** When a permittee becomes aware that he or she failed to submit any relevant facts or submitted incorrect information in the NOI or in any other report to the Department, he or she shall promptly submit such facts or information.
- D. Other Applicable Conditions.** The conditions applicable to all permits in *Waste Discharge License Conditions*, 06-096 CMR 523(2) and (3) (effective January 12, 2001) also apply to discharges pursuant to this general permit and are incorporated herein as if fully set forth.
- E. Accessibility.** Employees and agents of the Department may enter any property at reasonable hours in order to determine compliance with water quality laws or this general permit.
- F. Severability.** In the event that any provision, or part thereof, of this permit is declared to be unlawful by a reviewing court, the remainder of the permit shall remain in full force and effect, and shall be construed and enforced in all aspects as if such unlawful provision, or part thereof, had been omitted, unless otherwise ordered by the court.
- G. Monitoring Reports.** Monitoring results shall be reported at the intervals specified in Part I (F) of this permit.
- H. Non-compliance Reporting.** The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permit holder becomes aware of the circumstances. A written submission shall also be provided within 5 days of the time the permit holder becomes aware of the circumstances.
- I. Disposal of Solids.** For disposal purposes, any solids removed from the treatment system must be characterized as "Special Waste" pursuant to CMR Chapter 400 (1) III, Hhh, Nnn, and CCcc, at a minimum. Further sampling and analysis may be required by a waste hauler prior to shipping and disposal.
- J. Operation log.** The permittee shall maintain a log of vessel hull washing activities conducted in the wash water collection area, including number of vessels washed, treatment system operation and maintenance, sampling times, and treatment system bypasses due to storm events. The operation log may be combined with other environmental logging requirements if appropriate.

FACT SHEET

**GENERAL PERMIT – ANTIFOULING PAINT
CONTAMINATED VESSEL WASH WATER**

**Maine Department of Environmental Protection
Bureau of Land and Water Quality**

June 26, 2009



**MAINE POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT
AND MAINE WASTE DISCHARGE LICENSE**

**GENERAL PERMIT – ANTIFOULING PAINT CONTAMINATED VESSEL
WASH WATER**

FACT SHEET

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**MAINE POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT AND
WASTE DISCHARGE LICENSE**

**GENERAL PERMIT – ANTIFOULING PAINT CONTAMINATED VESSEL WASH
WATER**

**PRELIMINARY/PROPOSED DRAFT
FACT SHEET**

DATE: **June 26, 2009**

WASTE DISCHARGE LICENSE:
MPDES PERMIT:

#W009046-5Y-A-N
#MEG170000

1. AREA OF COVERAGE AND RECEIVING WATER CLASSIFICATION

The geographic area covered by this general permit includes all marine or estuarine waters of the State of Maine. This general permit covers discharges to marine and estuarine waters Class SB or SC only. Specifically excluded from the area of coverage are Class SA waters, waters within the Saco River Estuary, and those waters with a drainage area of less than 10 square miles.

2. APPLICATION SUMMARY

The Maine Department of Environmental Protection (Department) has developed this general permit authorizing discharges of treated AFP contaminated vessel wash water. Coverage under this general permit is dependent upon the ability to meet the eligibility, and the general, standard, and special conditions of the general permit. Continuing coverage is contingent upon compliance with the terms and conditions of the general permit, payment of an annual fee, and consistency of any discharge with the discharge description provided in the NOI. Vessel maintenance facilities may apply for an individual Maine Pollutant Discharge Elimination System (MEPDES) permit for waterbodies or circumstances that are not covered by this general permit.

3. REGULATORY SUMMARY

A permit is required for the discharge of pollutants to the waters of the state pursuant to *Water Pollution Control*, 38 M.R.S.A. § 413(1). A general permit authorizing the discharge of certain pollutants may be issued pursuant to *General Permits for Certain Wastewater Discharges*, 06-096 CMR 529 (last amended June 27, 2007). The similarity of discharges resulting from the pressure washing of vessel bottoms has prompted the Department to propose this general permit for those receiving waters not otherwise prohibited by Maine law.

The 2008 Integrated Water Quality Monitoring and Assessment Report lists the Saco River Estuary in a table entitled, *Estuarine And Marine Waters Impaired By Pollutants Other Than Those Listed In 5-B-5-D (TMDL required)*. The waters in the Saco River Estuary currently exceed the ambient water quality criteria for copper. Therefore, additional sources of copper are prohibited, excluding inclusion in this general permit.

A violation of a condition or requirement of a general permit constitutes a violation of the State's water quality laws, and subjects the discharger to penalties under *Organization and Powers*, 38 M.R.S.A. § 349.

On January 12, 2001, the Department received authorization from the U.S. Environmental Protection Agency (USEPA) to administer the National Pollutant Discharge Elimination System (NPDES) permit program in Maine. From that point forward, the program has been referenced as the MEPDES permit program.

Nothing in this general permit is intended to limit the Department's authority under the waste discharge and water classification statutes or rules. This general permit does not affect requirements under other applicable Maine statutes and Department rules.

4. ADMINISTRATIVE REQUIREMENTS

The administrative procedures and requirements associated with this general permit are based on the following Department rules: *Rules Concerning the Processing of Applications and Other Administrative Matters*, 06-096 CMR 2 (effective August 1, 1994); 06-096 CMR 529, and applicable Maine laws. Persons seeking coverage under this general permit must file a Notice of Intent (NOI). The NOI must contain sufficient information and facts to describe all proposed vessel hull washing operation and outfall location as to allow the Department to determine if the proposed activities are anticipated to comply with the general permit terms and conditions. Once a completed NOI is received, the Department has a maximum of 31 calendar days in which to act on it. If no other action is taken within that 31-day period, the NOI is considered approved at the close of business (5:00 p.m. Eastern Time Zone) on the 31st day following the Department's receipt of the NOI or the date of public notice whichever is later.

In the event that an activity covered by this general permit occurs on property that is sold or otherwise transferred, 38 M.R.S.A. § 413(3), 06-096 CMR 2(21)(C), and Part I.D.6. of this general permit govern the transfer of permits.

The term of this General Permit is five years. Coverage under this General Permit will be continued from year to year through payment of an applicable annual fee pursuant to *Maine Environmental Protection Fund*, 38 M.R.S.A. § 353-B, provided there are no changes in the facility or its operation as described in the NOI. Prior to expiration of this General Permit, the Department shall make a determination if it is to be renewed, and, if so, will commence renewal proceedings. If the General Permit is to be renewed, it shall remain in force until the Department takes final action on the renewal. Upon reissuance of a renewal General Permit, persons wishing to continue coverage shall apply for coverage under the renewal General Permit not later than 30 days following the effective date of the new General Permit.

5. DESCRIPTION OF PERMITTED ACTIVITIES

This general permit authorizes the discharge of treated AFP contaminated wash water to certain surface waters of the state. Specifically, this general permit regulates the washing of vessel hulls after removing the vessel from the water while the hull is still wet, or after the hull has dried. Hull washing may include pressure washing using high pressure water jet(s) to remove marine growth, dirt and paint at and below the water line of the vessel or manually scrubbing the hull and rinsing with low pressure water. All vessel wash water contaminated with AFP residue, any topside paint residue or significant amount of marine growth must be captured and treated. When not in use, the vessel maintenance facility must prevent rainwater and storm water from entering the treatment system.

Large amounts of marine growth that can be separated from the wash water prior to entering the treatment system may be disposed of as solid waste or composted provided that it is not contaminated with visible AFP debris. Visible AFP debris includes paint chips, dust, or accumulated pigment solids residue. Marine growth contaminated with AFP debris must be rinsed with clean water in the collection area to remove the debris, or the combined growth and debris must be treated as special waste. All paint debris, including any topside paint that can be separated and collected prior to entering the treatment system, must be disposed of a special waste.

Wash water generated during low pressure topside washing that does not include AFP residue, other paint residue, or other pollutants in significant quantity, is not subject to this permit.

6. DESCRIPTION OF POLLUTANTS

Since humans have been traveling the waters in durable watercraft, we have been trying to prevent marine organisms from fouling the hull. Fouling organisms, including bacteria, crustaceans, mollusks, tunicates, poriferans, and many forms of algae adhere to a vessel resulting in speed reduction, increased fuel consumption and potential structural damage to the hull. In the 1700's ship builders began using copper sheets nailed to the submerged portion of the hull to guard against the very damaging "shipworm", a mollusk. During this time, ships captains also noticed that copper sheathed vessels were much less prone to algae fouling resulting in the ship being faster. More recent studies have indicated that a 1mm thick layer of algal slime will increase hull friction by 80% and the fuel consumption by 17%¹. For large vessels, such as container ships, oil tankers, and military vessels, this loss in efficiency means millions of gallons or extra fuel, and thousands of tons of additional carbon emissions.

Since 1915, when Danish manufacturer J.C. Hempel invented the first marine AFPs, they have protected virtually all seagoing vessel hulls, primarily through the use of cuprous oxide in a paint base. In most commercial AFPs, cuprous oxide ranges from 15% to 87% by dry weight in the paint. Historically, vessels with aluminum hulls or steel vessels with long operating times had to use non-copper based AFPs to prevent electrolysis reactions that occur with

¹ S.M. Evans (and others), "The TBT ban: Out of the frying pan into the fire?" Marine Pollution Bulletin. 40 (2000) 204-211

cuprous oxide. The primary AFP used on these vessels contained tributyltin. Due to its persistence in the environment and very high broad spectrum toxicity, the use of tributyltin in AFPs is tightly regulated, and many states restrict or prohibit its use. Other pesticides that have been used in AFPs historically include: Diuron; dichlofluanid; tolylfluanid; Zineb, and deltamethrin. Although some of these continue to be registered in Maine for use in AFPs, they are not found in most commercially available vessel AFPs.

With the heightened awareness of the potential impacts of AFPs on the environment, paint manufacturers have been developing pesticides that are targeted more specifically to the fouling organisms and have less persistence in the environment, while still providing effective protection of vessels. The compounds frequently found in current AFPs include: copper oxide(s), copper pyrithione, copper thiocyanate; zinc oxide, zinc pyrithione; SeaNine[™] (4,5-dichloro-2-n-octyl-4-isothiazolin-3-one); and Irgarol[™] (1,3,5-triazine-2,4-diamine). The addition of the “booster biocides” SeaNine[™] and Irgarol[™] can result in effective paints with lower copper levels. However, because the compounds are relatively new, their long term persistence in the environment, and impacts on non-target organisms through food chain disruption is not well understood. Several paint manufacturers now offer AFPs that do not contain any copper by using only zinc pyrithione as the active biocide.

During end-of-season cleaning and storage, most vessels are hauled from the water and pressure washed before being transported to their winter storage location. During the hull pressure washing, high pressure water is used to remove marine growth. However, along with the marine growth, AFP still adhering to the hull is also normally removed resulting in AFP contaminated waste water. The level of AFP contamination can vary significantly depending on type of paint used, how well the paint adheres to the vessel, and how the washing is performed. Table 1 summarizes the typical pollutants found in AFP contaminated wash water generated typical hull pressure washing activities.

Table 1. Raw Antifouling Paint Contaminated Wash Water Primary Pollutants in mg/L.²

	Cu	Pb	Zn	Cr III	BOD	TSS
Average	54.054	1.545	30.985	0.088	275	328
Max	224	14	204	0.33	520	790

Specific pollutants generated during the authorized activity include: biochemical oxygen demand (BOD) from the marine growth that may have adhered to the vessel hull; suspended solids from the AFP pigment residue; copper, lead, zinc, chromium and several other pesticide compounds from the AFP residue; and minor amounts of oil and grease from engine exhaust discharges or other exposed portions of the propulsion system (if present).

BOD

The BOD is generated by the decay of marine growth that is removed from the hull during pressure washing. Marine growth may include but is not limited to; various forms of bacteria, algae, mollusks, and shellfish.

² Samples represented in this data were collected by Maine DEP and represents 18 individual samples.

TSS

The suspended solids in the wash water come from the coloring pigments in the paint residue, as well as from marine growth.

Copper

Copper as cuprous oxide(s) is a nearly ubiquitous contaminant in municipal, industrial, and stormwater discharges. Non-point sources of copper include stormwater discharges from roadways and parking lots containing brake pad dust, and stormwater discharges from copper flashing and downspouts³. Industrial point sources include electronics manufacturing, metals products and machine shops. Municipal sources include copper leaching from residential plumbing affected by acidic potable water supplies. Copper has long been used as an effective fungicide in orchards and to prevent moss and lichen growth on house roofs. The aqueous cupric ion, not complexed with organic and inorganic compounds, is acutely toxic to a wide variety of terrestrial and marine organisms particularly in the larval and planktonic forms by disrupting ATP exchange in the cellular metabolism. Copper is rapidly and readily complexed in the marine environment, making it less biologically available and less toxic. However, it is a persistent contaminant and can have significant impacts on non-target organisms. It is considered most effective against “hard” fouling organisms including mussels and barnacles.

In 1990, the mean level of copper in mussel tissues was determined to be 9 µg/g dry weight as measured as part of NOAA’s National Status and Trends Mussel Watch Program. Although this level is well below the generally accepted Lowest Observable Effects Level (LOEL) of about 15µg/g, it indicated the widespread nature of copper contamination. Monitoring done as part of the long term study of metals in Casco Bay did not find copper above ambient baseline data concentrations at any of the monitoring sites⁴.

Surface Water Quality Criteria for Toxic Pollutants, 06-096 CMR 584 (effective October 9, 2005) sets forth ambient water quality criteria (AWQC) for toxic pollutants and procedures necessary to control levels of toxic pollutants in surface waters. 06-096 CMR 584 establishes acute and chronic AWQC for copper (total) for marine waters as follows

<u>Acute</u>	<u>Chronic</u>
5.78 µg/L	3.73 µg/L

Lead

Lead is not identified as an active ingredient in AFPs, but appears to be a contaminant of zinc compounds used in the paints. Before being eliminated from gasoline, lead was a nearly ubiquitous contaminant in stormwater discharges and already widely contaminates coastal sediments. Historical sources of lead discharges in Maine include metal finishing, electronics textile, pulp and paper manufacturers. It is still widely used in lead acid batteries, vessel ballast, fishing line sinkers, and diving weights. Lead is a potent neurotoxin, and due to its stability it also bioaccumulates. Sub-lethal doses of lead can result in behavioral changes that can disrupt entire ecosystems.

³ Moran, Kelly D. “Copper Sources in Urban Runoff and Shoreline Activities” prepared by TDC Environmental, LLC for the Clean Estuary Partnership. November, 2004.

⁴ Maine DEP. 2008 305(b) Report and 303(d) list.

06-096 CMR 584 establishes acute and chronic AWQC for lead (total) for marine waters as follows:

<u>Acute</u>	<u>Chronic</u>
221 µg/L	8.52 µg/L

Zinc

Zinc as zinc oxide and its salts (zinc pyrithione) is also a ubiquitous contaminant. In addition to non-point sources from land, a significant source of zinc contamination in marine waters is due to the use of sacrificial zinc anodes use to prevent structural loss of steel on steel vessels. Zinc oxide and zinc pyrithione are primarily an anti fungal and antibacterial compound, zinc oxide are the primary ingredient in soothing protective ointments for children effective against streptococcus and staphylococcus bacteria. Zinc pyrithione is best known in its use for treating dandruff and seborreic dermatitis. Its antifungal effect is probably by disrupting cellular membrane transport. In AFP zinc compounds are considered algacides.

Zinc pyrithione has been demonstrated to be unstable in the marine environment, readily trans-chelating with copper, resulting in copper pyrithione and zinc salts. Zinc pyrithione is quickly photodegradable but in conditions typical to marine AFP use, the low light conditions of Maine waters would result in a much longer persistence and potential effect on non-target organisms and potential accumulations in the sediments.

06-096 CMR 584 establishes acute and chronic AWQC for zinc (total) for marine waters as follows:

<u>Acute</u>	<u>Chronic</u>
95 µg/L	86 µg/L

Irgaroltm (1,3,5-triazine-2,4-diamine)

Irgaroltm is a specific inhibitor of photosynthesis, targeting algae growth on vessel hulls and inhibiting the substrate often used by other fouling organisms. It has a relatively low biological activity to animals including fish, shellfish, and humans⁵. The algae EC 50 for Irgaroltm is 1.0 µg/L. Irgaroltm is fairly insoluble in water with a maximum solubility of 11.1 mol/L in fresh water at a pH of 5. In typical marine waters the solubility is 1.8 mol/L. Irgaroltm is designed to be active on the vessels hull alone⁶. The term half maximal effective concentration (**EC₅₀**) refers to the concentration of a substance which induces a response halfway between the baseline and lethal concentration. There are indications that if absorbed by non-target organisms, it is readily excreted and therefore does not bioaccumulate in the food chain.

Studies in Japan, the UK, and the US have revealed that Irgaroltm and its major degradation product M1 (2-methylthio-4-*tert*-butylamino-6-cyclopropylamino-s-triazine) are found in measurable quantities in the water column in dense boat population areas. The studies revealed levels of Irgaroltm between non-detectable, < 1 ng/L, in reference sites to 1816 ng/L in a dense marina location. Concentrations of Irgaroltm in the US locations generally averaged

⁵ Survey of scientific studies cataloged in the Integrated Risk Information System (ISIS).

<http://cfpub.epa.gov/ncea/iris/index.cfm>

⁶ Ciba Specialty Chemical Inc. "Ciba Irgaroltm 1051 Coating Effects Summary". Edition 7.12.2004

less than 16 ng/L, significantly less than the predicted phytoplankton effect level of 251 ng/L⁷. In Japan, the metabolite of Irgarol[™] M1 was found in higher concentrations than that of the parent compound Irgarol[™] indicating a higher environmental persistence and potentially a higher toxicity⁸. However, this trend was not replicated in recent US studies. Further, in the most recent studies in the US, elevated level of Irgarol[™] found in dense boat population areas did not appear to impair phytoplankton communities⁹. Studies regarding persistence and toxicity in the environment are ongoing.

Irgarol[™] is currently included in a number of commercially available antifouling paints for recreational and commercial vessels.

06-096 CMR 584 does not establish a statewide criteria for 1,3,5-triazine-2,4-diamine nor does it appear there proposed discharge standards available from other regulatory bodies.

SeaNine[™] (4,5-dichloro-2-n-octyl-4-isothiazolin-3-one)

SeaNine[™] is a marine antifouling agent, acting predominantly as a settlement inhibitor against bacteria, algae, mollusks, and tunicates. Although acutely toxic to a broad spectrum of marine organisms, SeaNine[™] shows no chronic toxicity as it is rapidly biodegradable in the environment resulting in limited exposure of non-target organisms and has minimal bioaccumulation hazard. The half life of SeaNine[™] is one day in sea water and one hour in sediment. Rohm Haas, the designer of SeaNine[™] was awarded the Presidential Green Chemistry Challenge Award in 1996 for the development of an effective alternative to tributyltin. The maximum allowable environmental concentration of SeaNine[™] is 0.63µg/L.

SeaNine[™] is currently only available in antifouling coatings for large commercial and military vessels.

06-096 CMR 584 does not establish a statewide criteria for 4,5-dichloro-2-n-octyl-4-isothiazolin-3-one nor does it appear there proposed discharge standards available from other regulatory bodies.

7. DESCRIPTION OF TREATMENT

All AFP contaminated wash water must be collected via some means. Normally, this would be a designated vessel wash area with an large impervious surface pitched to direct the wash water to a collection trench or low point. The impervious surface or wash pad must be large enough to collect the majority of wash water falling from a vessel. Wash pads may be permanently installed or be temporary. Treatment of AFP contaminated wash water begins with mechanical filtration via manual separation, a grate, or coarse sieve to remove large solids over the wash water collection trench or basin. Removal of the coarse organic solids is

⁷ Lenwood W. Hall Jr. (and others), "Monitoring of Irgarol 1051 concentrations with concurrent phytoplankton evaluations in the East Coast areas of the United States"; Marine Pollution Bulletin, Vol. 50 Number 6 (2005): 668-681.

⁸ H. Okamura (and others); "Fate and ecotoxicity of the new antifouling compound Irgarol 1051 in the aquatic environment"; Water Research, Volume 34 Issue 14, (2000): 3523-3530.

⁹ Lenwood W. Hall Jr. (and others), "The relationship of Irgarol and its major metabolite to resident phytoplankton communities in a Maryland marina, river and reference area."; Marine Pollution Bulletin, Volume 58 Issue 6, (2009) 803-811.

considered phase one of the treatment process. Wash water may flow via gravity or be pumped from phase one to phase two.

Phase two of mechanical filtration of the wash water may be achieved through settling in a baffled trench, settling tanks, or other approved method to remove the majority of the settleable solids. Once the clarified wash water exits the phase two filtering and settling it will flow via gravity or be pumped to the next phase of treatment. Most treatment systems will include similar process for phase one and two.

Phase three of the wash water treatment includes further removal of suspended and dissolved pollutants through the use of mechanical, chemical, or electrical filtration. In order for a treatment system to be approved by the Department, the design must be able to meet consistently or exceed the treatment standards set forth in this permit. Commercially available treatment systems include the following:

- a. Mechanical filtration removes pollutants via decreasing filter openings and may include fiber filters that are normally effective down to 1 micron, solid carbon and ceramic filters effective as low as .22 micron and membrane filtration including microfiltration for macromolecules down to reverse osmosis that effectively removes free ions. Mechanical filtration is a very effective and demonstrated technology.
- b. Flocculation uses chemicals or electricity to cause particles to clump together, or floc, that then either drop out of suspension or are filtered out by mechanical means. Many commercial water treatment systems use chemical flocculation effectively, however, the ability of flocculation systems to meet the treatment standards set forth in this permit has not yet been demonstrated.
- c. Adsorption filters generally use activated carbon which captures pollutants and binding them to the media via chemical and physical bonds. Activated carbon filters are more effective on organic compounds than on inorganic compounds and may require tremendous maintenance to remain effective.
- d. Once the wash water has passed through the phase three treatment, it will meet the treatment standards. The resultant filtrate and filter media must be disposed of in accordance with all applicable state and federal regulations.

8. CONDITIONS OF PERMITS

Conditions of licenses, 38 M.R.S.A. § 414-A, requires that the effluent limitations prescribed for discharges, including, but not limited to, effluent toxicity, require application of best practicable treatment (BPT), be consistent with the U.S. Clean Water Act, and ensure that the receiving waters attain the State water quality standards as described in Maine's Surface Water Classification System. In addition, 38 M.R.S.A., § 420 and 06-096 CMR 530 require the regulation of toxic substances not to exceed levels set forth in *Surface Water Quality Criteria for Toxic Pollutants*, 06-096 CMR 584 (effective October 9, 2005), and that ensure safe levels for the discharge of toxic pollutants such that existing and designated uses of surface waters are maintained and protected.

9. RECEIVING WATER QUALITY STANDARDS:

This General Permit authorizes discharges to Class SB and SC waters. 38 M.R.S.A. § 465-B describes the standards for Class SB and SC waters.

10. RECEIVING WATER QUALITY CONDITIONS:

The 2008 Integrated Water Quality Monitoring and Assessment Report prepared pursuant to Sections 305(b) and 303(d) of the Federal Water Pollution Control Act indicates that 94.4% of the marine and estuarine waters within the area of coverage of this permit are attaining standards for some uses with insufficient information on other uses, and 5.5% as being impaired for one or more uses. Of the impaired waters 5.41% are impaired due to bacteria, the other 0.09% are impaired by pollutants other than bacteria. The Saco River Estuary is the only waterbody with an impaired use due to copper in combination with other pollutants and is excluded from the area of coverage.

As permitted, the discharges will not cause or contribute to the non-attainment of the receiving waters since their ambient concentration will be below applicable water quality criteria after a reasonable opportunity for dilution at the point of discharge.

11. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

06-096 CMR 530(3)(D) states, “*Expression of effluent limits. Where the need for effluent limits has been determined, limits derived from acute water quality criteria must be expressed as daily maximum values. Limits derived from chronic or human health criteria must be expressed as monthly average values.*” After reviewing the effluent calculations, the Department has determined that using the chronic criteria will be most protective of aquatic life. Therefore, this permit establishes daily maximum (acute) end-of-pipe (EOP) concentration and chronic mass limits for BOD, TSS, copper, lead, zinc, and chromium (III). The derivation for these limits is as follows:

- a. Flow: This permitting action establishes applicable effluent limitations and monitoring requirements based on daily maximum and monthly average discharge flow rates of 1,000 gallons per day and 600 gallons per day, respectively, of treated AFP contaminated vessel wash water. This permit requires the facility to measure flows once per discharge week, which is consistent with the flow monitoring requirement for other similar facilities.

All effluent limitation calculations in this permit are based on the flow as estimated via pressure washer flow rates and actual measured times for various vessel lengths. The Department estimates that on average it takes 1.3 minutes to pressure wash one linear foot of vessel length based on a 40-foot vessel normally taking 30 minutes to pressure wash. Pressure washers vary in flow rate from 1.5 to 4.5 gpm, so the Department assumed an average flow of 3.0 gpm. Based on Department of Inland Fisheries and Wildlife registration data, the average size of vessel that would normally be hauled at a vessel maintenance facility is 32'. Using the assumptions above results in a discharge

of 125 gallons per 32' vessel. Most boatyards and marinas in Maine will haul 5-8 vessels per day, resulting in a daily maximum discharge of 1,000 gpd.

b. Dilution Factors: 06-096 CMR 530(4)(a)(2) states:

- (1) *For estuaries where tidal flow is dominant and marine discharges, dilution factors are calculated as follows. These methods may be supplemented with additional information such as current studies or dye studies.*
 - (a) *For discharges to the ocean, dilution must be calculated as near-field or initial dilution, or that dilution available as the effluent plume rises from the point of discharge to its trapping level, at mean low water level and slack tide for the acute exposure analysis, and at mean tide for the chronic exposure analysis using appropriate models determined by the Department such as MERGE, CORMIX or another predictive model.*
 - (b) *For discharges to estuaries, dilution must be calculated using a method such as MERGE, CORMIX or another predictive model determined by the Department to be appropriate for the site conditions.*
 - (c) *In the case of discharges to estuaries where tidal flow is dominant and marine waters, the human health criteria must be analyzed using a dilution equal to three times the chronic dilution factor.*

Using the assumptions that follow and the CORMIX model, the Department has determined that the dilution factors for the discharge of an average of 600 gallons per day of treated AFP contaminated wash water to waterbodies defined in the area of coverage and meeting the permit requirements are 272:1 at a discharge depth of 10 feet at mid-tide, or 5 feet at low tide, and a continuous even flow over a 24 hour period. This is the most conservative estimate for dilution, assuming a 0 foot per second ambient velocity and will be considered the chronic dilution ratio. It is likely that the discharge will occur during a more concentrated time period. Modeling indicates that discharging the maximum permitted volume during a shorter period of time, 12 hours, results in an increased dilution of 428:1 due to the increased velocity of the effluent as it exits the outfall, resulting in greater initial mixing. The 428:1 ratio will be considered the acute dilution factor.

- c. Biochemical Oxygen Demand (BOD5) & Total Suspended Solids (TSS): - This permit establishes the maximum daily BOD5 and TSS concentration limit of 50 mg/L and a monthly average of 30mg/L based on a Department best professional judgment of best practicable treatment (BPT).

The constants 3.785 and 473,592 represent conversions factors from mg/L to lbs/day.

Monthly BOD and TSS mass loading calculations at 600 gpd are as follows:

Daily Maximum = $(50 \text{ mg/L})(3.785)(1000)/473,592 = 0.40 \text{ lbs/day}$

Monthly Average = $(30 \text{ mg/L})(3.785)(600)/473,592 = 0.14 \text{ lbs/day}$

- d. 06-096 CMR 530 (4)(C), states, *“The background concentration of specific chemicals must be included in all calculations using the following procedures. The Department may publish and periodically update a list of default background concentrations for specific pollutants on a regional, watershed or statewide basis. In doing so, the Department shall use data collected from reference sites that are measured at points not significantly affected by point and non-point discharges and best calculated to accurately represent ambient water quality conditions.”* The Department shall use the same general methods as those in section 4(D) to determine background concentrations. For pollutants not listed by the Department, an assumed concentration of 10% of the applicable water quality criteria must be used in calculations. The Department has very limited information on the background levels of metals in the water column of the marine and estuarine waters in the area of coverage. Therefore, a default background concentration of 10% of the applicable water quality criteria is being used in the calculations of this permitting action.

06-096 CMR 530(4)(E), states, *“In allocating assimilative capacity for toxic pollutants, the Department shall hold a portion of the total capacity in an unallocated reserve to allow for new or changed discharges and non-point source contributions. The unallocated reserve must be reviewed and restored as necessary at intervals of not more than five years. The water quality reserve must be not less than 15% of the total assimilative quantity”*. Therefore, the Department is reserving 15% of the applicable water quality criteria in the calculations of this permitting action.

06-096 CMR 530(3)(D) states, *“Expression of effluent limits. Where the need for effluent limits has been determined, limits derived from acute water quality criteria must be expressed as daily maximum values. Limits derived from chronic or human health criteria must be expressed as monthly average values.”* Therefore, this permit establishes both monthly average (chronic) end-of-pipe (EOP) mass and concentration limits and daily maximum (acute) EOP mass and concentration limits for copper. The derivation for these limits is as follows:

Concentration Limit Formula = [(Dilution Factor)(0.75)(criterion)] + [(0.25)(criterion)]

Mass Limit Formula =
$$\frac{(\text{Conc. Limit, mg/L})(3.785)(\text{flow limit, gpd})}{473,592}$$

The constants 3.785 and 473,592 represent conversions factors from mg/L to lbs/day.

Copper (Total):

Acute AWQC = 5.79 µg/L or .00579 mg/L

Acute dilution = 428:1

Chronic AWQC = 3.73 µg/L or .00373 mg/L

Chronic dilution factor = 272:1

End-of-pipe (EOP), water quality-based daily maximum concentration and mass limits for copper (total) may be calculated as follows:

$$\begin{aligned}\text{Daily Maximum Conc.} &= [(428)(0.75)(5.79 \mu\text{g/L})] + (0.25)(5.79 \mu\text{g/L}) \\ &= 1858.59 + 1.45 \\ &= \mathbf{1860.04 \mu\text{g/L}}\end{aligned}$$

$$\text{Daily Maximum Mass} = \frac{(1.860 \text{ mg/L})(3.785)(1000 \text{ gpd})}{473,592} = \mathbf{0.014 \text{ lbs./day}}$$

$$\begin{aligned}\text{Monthly Average Conc.} &= [(272)(0.75)(3.73 \mu\text{g/L})] + (0.25)(3.73 \mu\text{g/L}) \\ &= 760.92 + .93 \\ &= \mathbf{762.78 \mu\text{g/L}}\end{aligned}$$

$$\text{Monthly Average Mass} = \frac{(0.763 \text{ mg/L})(3.785)(600 \text{ gpd})}{473,592} = \mathbf{0.004 \text{ lbs./day}}$$

The same calculations were performed on the balance of the pollutants to be monitored. The results of those calculations can be found on Page 10 of the General Permit.

06-096 CMR 530(3)(D)(1) states “*For specific chemicals, effluent limits must be expressed in total quantity that may be discharged and in effluent concentration. In establishing concentration, the Department may increase allowable values to reflect actual flows that are lower than permitted flows and/or provide opportunities for flow reductions and pollution prevention provided water quality criteria are not exceeded. With regard to concentration limits, the Department may review past and projected flows and set limits to reflect proper operation of the treatment facilities that will keep the discharge of pollutants to the minimum level practicable.*”

So as not to penalize the permittee for operating at flows less than the permitted flow, the Department is establishing concentration limits based on a factor of 1.5. Therefore, concentration limits for the parameters of concern in this permit are as follows:

	Monthly Average	Monthly Average	Daily Max.	Daily Max.
<u>Parameter</u>	<u>Concentration</u>	<u>Mass. Limit</u>	<u>Conc. Limit</u>	<u>Mass. Limit</u>
Copper	781 µg/L (0.781 mg/L)	0.006 lbs/day	1856 µg/L (1.856 mg/L)	0.022 lbs/day
Lead	1740 µg/L (1.74 mg/L)	0.012 lbs/day	7099 µg/L (7.099 mg/L)	0.850 lbs/day
Zinc	17,56 µg/L (17.56 mg/L)	0.126 lbs/day	3051 µg/L (3.051 mg/L)	0.366 lbs/day

- f. pH: This pH range limit of 6.0 –9.0 standard units is set pursuant to 06-096 CMR 525(3)(IV)(c). The limits are considered BPT.

12. ANTIDegradation

The State's antidegradation policy is set forth at 38 M.R.S.A. § 464(4)(F). The Department has determined that the discharge of treated AFP contaminated vessel wash water in accordance with the terms and conditions of this general permit will not violate the provisions of the antidegradation policy.

13. PUBLIC COMMENTS

14. RESPONSE TO COMMENTS

14. DEPARTMENT CONTACTS

Additional information concerning this permitting action may be obtained from, and written comments sent to:

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Department of Environmental Protection
17 State House Station
Augusta, Maine 04333-0017 Telephone: (207) 287-7905 Fax 207-287-3435
pamela.d.parker@maine.gov

15. REFERENCES

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